

EDITORIAL ARTICLES.

HORSLEY ON THE SURGERY OF THE CENTRAL NERVOUS SYSTEM.¹

a. *Depressed fractures of the skull.*—The author urges in the most emphatic manner the necessity of trephining in every such case, whether or not accompanied by an external wound of the soft parts, or by immediate symptoms of gravity. He claims that especially in children who are tolerant of external injuries of this kind, the fracture will almost certainly bring with it, not only epilepsy, but also mental defect, persistent loss of memory and general deterioration. Trephining and the elevation of the bone to its normal position, with clearing the subdural space of blood and clots, should be the invariable practice in these cases.

b. *Laceration of the brain.* Not only in cases of compound fracture, recent or of long standing, but also in simple cases of laceration, Horsley advocates trephining, freely opening the dura, washing out clots, removing hopelessly bruised brain, the operation concluding by suture of the dura and replacement of the button of bone. He says that these measures may prevent or entirely relieve the remote and sometimes the immediate consequence of epileptic convulsions. He relates in illustration the case of a medical gentleman who sustained an extensive laceration of the brain, involving the frontal, parietal and temporal lobes. He was hemiplegic and partly unconscious for ten days, at the end of which time he suddenly, after exertion, developed most dangerous symptoms, became absolutely comatose, the respiration periodic, that is, Cheyne Stokes, etc. On trephining him freely and washing out the whole left dural sac free of blood and clots, he

¹Abstract of the memoir presented before the Berlin International Medical Congress, September, 1890.—*British Medical Journal*, Dec. 6, 1890.

completely recovered, and is now practising his profession. Horsley considers that this was an instance of secondary hæmorrhage from a torn vessel.

Ordinary cerebral hæmorrhage, that is, from the lenticulostriate artery, constituting simple apoplexy. In these cases ligature of the common carotid artery should be performed, for the following reasons:

1. Present measures, for example, position, application of cold, bleeding, counter-irritation to the legs, etc., can in no wise be considered as in any way able to check the hæmorrhage from the injured vessel. Indeed, in appreciation of this view, most modern writers advise leaving the patient alone to take his chance.

2. The remote consequences, namely, permanent hemiplegia, even if death itself does not ensue, vary directly with the number of fibres torn through by the hæmorrhage; it is, therefore, absolutely incumbent upon us to, under all circumstances, stop the bleeding if possible.

3. This can be effected either by arrest of the carotid stream, or by ligature of, or pressure upon, the bleeding point

4. To effect the latter a dissection would have to be performed which would certainly produce more destruction than concomitant benefit.

5. On the other hand, compression, or better, ligature of the common carotid, not only arrests the flow of blood from the lenticulostriate artery, but in a few seconds also even the flow from the middle cerebral artery. See the *Brit. Med. Jour.*, March 2, 1889, page 457.

6. Aseptic ligature of the common carotid is a very simple procedure, and primary union can be ensured in a few days; the temporary paresis which has occasionally been noticed the author himself has never seen, and the occurrence of permanent hemiplegia, cerebral softening, etc., is only to be met with, so far as he is aware, in cases of septic operations. The dread of, and the importance ascribed to, ligature of the carotid are, therefore, quite fictitious, and ought not to be allowed to stand in the way of the suggested procedure.

Tumors. The author protests against the inordinate length of time

during which cases of brain tumor are subjected to treatment by drugs, so that when surgical relief is finally determined upon, the patient is quite unfit to undergo it. He alludes particularly to the use of iodide and bromide of potassium, and urges that unless very notable, not merely temporary improvement, is obvious after large doses have been given for six weeks, treatment by drugs should be abandoned, and exploratory operation resorted to.

Syphilitic cerebral gummata and pachymeningitis. As regards pachymeningitis, Horsley is certain that it has a great tendency to spread, even if the original plaque be excised, while it is only moderated, not cured, by drugs. As to cerebral gumma, medicinal treatment in no wise cures, and only temporarily alleviates the trouble. For the cure of this condition, and of tuberculous nodules, excision offers the only chance for the patient.

Malignant and diffusely growing tumors. Even where the necessity of early operation has not been recognized, these growths can be excised with temporary and remarkable benefit to the sufferer, but with, of course, an increasing risk of death from shock in proportion to the extent of the disease and the age of the patient. In such cases Horsley proposes that the growth be thoroughly explored, and if deemed irremovable that the wound should be closed. The effects are much better than might be anticipated. Not only are the intense headache and vomiting relieved, but a most interesting arrest of the optic neuritis occurs, a phenomenon which he has now observed repeatedly during the last five years, and which, in many cases, is a source of much amelioration to the patient from the consequent recovery of sight. Further, he has observed that the operation has conferred the additional benefit of notable prolongation of life. One case in particular, on whom he operated nearly two years ago for gliosarcoma of the cortex, is now enjoying very good health, and it seemed as if the effect of the interference was to check for a year the progress of the growth, for the symptoms steadily improved. A striking instance of the kind is that of a gentleman who presented the very rare condition of epileptic attacks in which the body rotated toward the left violently round the central axis, and, further, in whom the most distressing

attacks of dyspnœa occurred. Having made the diagnosis of a tumor of the middle cerebellar peduncle Horsley removed first one-half of the occipital bone, and later, at the patient's own request, the other half, with the effect of abolishing the respiratory attacks, which were very painful, the severe headache, and finally the turning convulsions, for a time. His life has been prolonged with much comfort nearly two years, the symptoms of pressure on the pyramidal tracts, which disappeared after the first operation, recently becoming marked again. Horsley has operated in six such cases with no death.

To sum up, the inference is that we should operate in all cases of tumor for the sake of the relief it affords, even should it be found during the operation that cure by removal is impossible.

Focal epilepsy. In all cases where an initial spasm of a segment or part of the body can be detected, an operation should be done. The foci of the representation of movement of individual segments of the body, as they exist in the cortex, are now fairly well known. The procedure to be adopted in these cases is as follows: Careful examination of the case, and the observation of attacks by trained nurses and attendants having been made possible, as will be the case in some cases of epilepsy, the formation of a positive opinion as to the seat of the epileptogenous disturbance, exploration of this spot should be undertaken, after a few months' trial with bromides, douches, etc. If no gross lesions are observable when the cortex is exposed, it should be stimulated with the induced current, preferably of a Du Bois-Reymond coil, furnished with one Daniell or chloride of silver cell, and with aseptic electrodes of platinum two millimetres apart. Careful observation will soon show movement of each segment.

The locality giving rise to the initial spasm should then be excised. Owing to the fact that the focus alone of the representation of one segment is thus removed, only slight and temporary paresis follows.

In a case operated upon by the author in 1885, and which he then regarded as hopeless, a most remarkable improvement and development has since taken place. Horsley does not think that a final answer can be given as to the freedom from epileptic attacks until each case has been observed for above five years, but if the attacks are

only mitigated in severity, and not absolutely cured, a notable relief is afforded, of which the improvement in the mental condition is at once the clearest evidence and the most desirable result.

Althetosis. Horsley regards this disease as a form of cortical discharge, although he acknowledges that its pathology is as yet obscure. He recently operated in an otherwise hopeless case, in which his colleague, Dr. Beevor, having detected a successive invasion of segments by the movement commencing in the thumb, had been led to the conclusion that the affection was of cortical origin. Horsley therefore removed the focus for the representation of the movements of the thumb, with the effect of arresting the movements for about two weeks. They, however, returned, as the cortex around resumed its functional activity. It is, therefore, evident that the whole representation of a part must be removed, a course which the paralyzed state of the limb fully warrants.

General operative dangers. The death rate for the operations performed by Horsley had been 21%. These deaths he claims to have been due entirely to the hopeless conditions of extensive injury and septic meningitis, as well as the very advanced cases of cerebral tumor, in which he has operated as a *dernier ressort*, but which ought to have been treated surgically many months before. The best proof of this is that the cause of death is invariably shock, and this not from loss of blood or undue prolongation of the operation. The reproach of such a death-rate will not be removed by refusal to operate, but by an early and universal recognition of the futility of treatment by drugs.

In all other conditions the risk is nearly *nil*. The mode of union is immediate in successful cases. Since his third case he has never drained a case of primary operation, but has sutured the wound closely.

Operative treatment of diseases of the spinal cord. Horsley has now trephined the spine (opening the theca in six cases) nineteen times with one death, which was from shock. He advises that in fracture of the spine operation without delay should be resorted to in all cases where displacement or crepitus indicates compression, and where extension directly after the injury clearly fails to reduce the deformity.

In caries of the spine, while he admits that operations in acute cases are likely to be unsuccessful, he thinks that where there is great pain, this might best be relieved and the abscess opened by trephining the spine posteriorly. In any case it does no harm, and he has seen cases advised to be let alone die in the excruciating agonies of acute compression, a state of things which is certainly a reproach.

As regards the value of the operation there can be no doubt. As an example, he cites a case in which the patient was cyanotic and obviously dying when the arches of the atlas and axis were removed with complete relief. Even where there was extensive concomitant tubercular disease in other viscera, he has seen patients actually improve after this operation.

SOME RECENT CRANIAL SURGERY.

Cranial surgery being still in a transition state, every contribution to its history is of particular interest as affording additional material, by the collation of which definite conclusions may be attained. Operations formerly tabooed on account of the extremely high mortality or great uncertainty attending them, are now admitted to the category of recognized procedures, while others have been rejected and still others are in process of development. The following contributions to cranial and intra-cranial surgery, collected from recent American medical journals, then form a useful part of the material upon which the establishment of the extent and limitations of the cerebral surgery of the future shall be founded.

Dr. C. B. Porter read before the Boston Society for Medical Observation three cases of fracture of the skull which he considered worthy of record, the first two from the severity and extent of the injury from which they recovered, and the third as showing a cure of bullet wound of the brain treated without operation under strictly antiseptic dressings, and all of them as showing the diminution of the danger of cranial surgery by antiseptic methods.